REMARKS

Applicant respectfully requests reconsideration. Claims 42-53, 59-69, 71-73 and 75-80 were previously pending in this application. No claim has been amended herein. No claim has been canceled. Claims 42-53, 59-69, 71-73 and 75-80 are still pending for examination with claims 42 and 71 being independent claims. No new matter has been added.

Rejection Under 35 U.S.C. 112

Claims 42-53, 59-69, 71-73 and 75-80 have been rejected under 35 U.S.C. § 112, first paragraph, as lacking enablement. The Office alleges that the specification does not provide working examples for treating cancer by administering CpG oligonucleotides and that undue experimentation is required to practice the claimed methods.

Applicant's specification teaches the skilled artisan about a new class of drugs, describes the structural properties that make this class of drugs active, demonstrates the activity of such drugs, provides a nexus between the data in the specification and the claimed method, and describes how to administer the drugs to a subject in order to treat a disease. Thus, Applicant has met the enablement standard by teaching the skilled artisan how to make and use the claimed invention. The data in the specification is sufficient to establish that CpG ODNs are a class of therapeutic agents and that these new therapeutics function in a manner similar to bacteria, inducing a robust immune response in a host capable of treating a cancer. Applicant presented evidence of such in the form of pre-filing papers, teachings in the specification on how to administer the CpG ODN, and post-filing publication evidence, showing that skilled artisan's using methods such as those described in the specification were able to treat cancer.

Previously, Applicant cited several references (Tonkunaga et al., Trinchieri et al., Brunda et al., U.S. Pat. No.: 4,883,662, and Hayashi et al.) that describe the state of the art with respect to immune system activation and the treatment of cancer prior to or around the priority date of the instant application. In response the Office argues that "[n]one of these references speak to the use of CpG oligonucleotides to treat cancer."

Applicant submitted the publications that were published prior to the filing date, establishing a nexus between various aspects of the immune response and the treatment of cancer. The papers were presented for the purpose of establishing the state of the art at the time the patent application was filed. That is, the skilled artisan recognized that induction of certain immune factors was useful for treating cancer. Applicant did not cite these references to demonstrate that prior to the invention CpG ODNs were useful for treating cancer. Rather, these references were cited to establish what was known in the art at the filing date regarding a correlation between immune stimulation and the treatment of cancer. The cited references show that cytokines which are induced by unmethylated CpG oligonucleotides, as demonstrated in the specification, such as, e.g. IL-12 and IFN-gamma (page 54, lines 29-31), are useful for the treatment of cancer. Applicant's response pointed out data in the specification demonstrating induction of cytokines, which were known in the art at the time of the invention to be correlated with the treatment of cancer. The data presented in these papers was sufficient to establish that one of ordinary skill would have expected based on the data in the specification that unmethylated CpG oligonucleotides are useful in the treatment of cancer.

The Office argues that no additional support has been provided for the treatment of cancer, which, the Office alleges, is an unpredictable art. As evidence, the Office cites a study conducted with Endostatin arguing that no benefit could be detected in patients treated with Endostatin. Applicant points out that the claims recite treatment of cancer with unmethylated CpG oligonucleotides. Endostatin is a protein fragment of type XVIII collagen. Success or failure of Endostatin in clinical trials is irrelevant for the enablement inquiry of the claimed methods. Nevertheless, even though the results obtained for Endostatin are not relevant for what is claimed, contrary to the contention that Endostatin did not prove useful, a recent phase III clinical trial showed positive results for Endostatin treatment of NSCLC patients, demonstrating that these patients can derive a benefit from such treatment (Sun et al. J Clin Oncol, 2005, 23:7138, Abstract).

The Office cites Gura and argues that only a minority of tested drugs have won FDA approval, none of which for supportive care, and that the "fundamental problem in drug discovery for cancer is that the model systems are not predictive." Applicant respectfully submits that the number of tested drugs that have won FDA approval and whether the model systems are predictive

or not is not essential to an enablement analysis. The test of enablement is whether one of skill in the art can make and use the claimed invention without "undue experimentation".

In In re Krimmel 292 F .2d 948 at 954, 130 USPQ 215 (CCPA 1961) the Court held that "[t]here is nothing in the patent statute or any other statutes called to our attention which gives the Patent Office the right or the duty to require an applicant to prove that compounds or other materials which he is claiming, and which he has stated are useful for pharmaceutical applications, are safe, effective and reliable for use with humans."

In In re Brana 51 F .3d 1560, 1569 (Fed.Cir.1995) the court held that the enablement mandate implicitly requires utility and stated concerning model systems, that by citing references that "merely discuss the therapeutic predictive value of in vivo murine tests" the Office does not meet its "burden of challenging a presumptively correct assertion of utility in the disclosure" (In re Brana 51 F .3d at 1566). The court reiterated its finding in In re Krimmel 292 F .2d 948 at 953, 130 USPQ 215 (CCPA 1961) that tests conducted in standard experimental animals are sufficient to establish utility. The court in In re Krimmel specifically rebutted the Board's assertion that any compound which has not been carried beyond the experimental stage of animal testing "may properly be regarded as of merely speculative or at best potential utility" and "that applicant will concede that in thousands of cases, promising animals tests have failed to prove out on humans" (In re Kimmel 292 F .2d at 950). The court held that "it is our firm conviction that one who has taught the public that a compound exhibits some desirable pharmaceutical property in a standard experimental animal has made a significant and useful contribution to the art, even though it may eventually appear that the compound is without value in the treatment in humans" (In re Kimmel 292 F .2d at 953).

The case law establishes that to be enabling for the claimed invention a specification has to establish that a compound and/or method of treatment is useful, it is however not required to show data demonstrating safety, effectiveness or reliability for use in humans. The teachings provided in the specification clearly demonstrate to one of ordinary skill that the cytokines that are induced by unmethylated CpG oligonucleotides are useful for the treatment of cancer. The specification provides data obtained in an animal model (mice) showing induction of cytokines and B cell stimulation in the animals upon administration of unmethylated CpG oligonucleotides.

The Office cites Forni et al. and argues that certain kinds of tumors are more difficult to treat, and that in some cases responses to immunotherapy treatment are muted and/or temporary. The reference mainly focuses on the results obtained for IL-12 treatment in a mouse cancer model. Applicant respectfully points out to the Office that while IL-12 is also produced upon administration of unmethylated CpG oligonucleotides in mice it is not the only cytokine that is induced. Many additional cytokines are induced (see e.g. page 53, lines 26-29). That administration of IL-12 was less effective in treating established cancers than preventing or slowing down cancer progression of newly developing cancers does not preclude effectiveness of unmethylated CpG oligonucleotides that induce several different cytokines, including IL-12, in the treatment of developing or established cancers. Further, claims 43, 44 and 72, 73 are directed to the treatment of cancer using unmethylated CpG oligonucleotides in combination with another chemotherapeutic or immunotherapeutic agent. Forni et al. describe that immunotherapy is particularly effective against residual disease after conventional cancer therapy and in the control of tumor recurrences (see page 2571, right column, 2nd paragraph). The teachings in the specification are inclusive of such approaches, see for example on page 54, lines 20-22. Thus, Forni et al. supports enablement of some embodiments of the invention rather than showing a lack thereof. Even if not every unmethylated CpG oligonucleotide works equivalently in treating cancer, this would still not provide a sufficient basis for rejecting the claims for lack of enablement (Atlas Powder Co. v. E.I. du Pont de Nemours & Co, 750 F.2d 1569, 1576-77, (Fed. Cir. 1984)). "The test of enablement is not whether any experimentation is necessary, but whether, if experimentation is necessary, it is undue". In re Angstadt 537 F.2D 498, 504, 190 USPQ 124, 129, (CCPA 1976).

"The fact the experimentation may be complex does not necessarily make it undue, if the art typically engages in such experimentation. In re: Certain limited-charge cell culture microcarriers, 221 USPQ 1165, 1174 (Int'l Trade Comm'n 1983)." (MPEP Section 2164.01). The specification teaches, and provides animal data, that cytokines that are useful for the treatment of cancer are induced upon administration of unmethylated CpG oligonucleotides. Experiments involving optimization are not undue experimentation. The use of any drug in human patients requires further optimization. Even commercially available FDA-approved drugs are subject to further research and development.

One of ordinary skill can practice the claimed treatment methods without undue experimentation based on the teachings provided in the specification and based on the knowledge in the art at the time of filing of the application. The Office has not provided sufficient evidence to establish a lack of enablement of the claimed methods.

Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

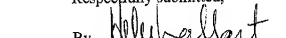
CONCLUSION

A Notice of Allowance is respectfully requested. The Examiner is requested to call the undersigned at the telephone number listed below if this communication does not place the case in condition for allowance.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicant hereby requests any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, the Director is hereby authorized to charge any deficiency or credit any overpayment in the fees filed, asserted to be filed or which should have been filed herewith to our Deposit Account No. 23/2825, under Docket No. C1039.70021US01.

Dated: August 26, 2009

Respectfully submitted,

By 

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